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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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NORRIS, MCLAUGHLIN & MARCUS
875 THIRD AVE
18TH FLOOR
NEW YORK, NY 10022

EXAMINER

LE, UYEN CHAU N

ART UNIT

PAPER NUMBER

2876

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/676,198

Applicant(s)

TENCA ET AL.

Examiner

Uyen-Chau N. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 5 and 9-11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/2/04 and 1/6/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claims 1-2, 4 and 7-11 are objected to because of the following informalities:

Re claim 1, line 5: The phrase “a diffraction and interference structure” renders the claim to an indefinite/unclear. Appropriate clarification is respectfully required.

Re claim 2, line 2: The phrase “a 2D-sub-micrometer structure” renders the claim to an indefinite/unclear. Appropriate clarification is respectfully required.

Re claim 4, lines 2-3: The phrase “micro-interference structures and macroscopic structures” renders the claim to an indefinite/unclear. Appropriate clarification is respectfully required.

Re claim 7, line 2: Substitutes “the entering and the exiting beams” with -- entering and exiting beams --.

Re claim 7, line 3: Substitutes “the interior roof surfaces” with -- interior roof surfaces --.

Re claim 8, line 2: Substitutes “the base surface” with -- a base surface --.

Re claim 8, line 2: Substitutes “the region” with -- a region --.

Re claim 8, line 3: Substitutes “the region” with -- a region --.

Re claim 9, lines 1-2: Substitutes “signal source” with -- the signal source --.

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Re claim 9, line 2-3: Substitutes "the region of the beam entrance" with -- a region of a beam entrance --.

Re claim 10, line 3: Substitutes "the beam receiver" with -- a beam receiver --.

Re claim 11, line 2: Substitutes "the radiation source" with -- a radiation source --.

Re claim 11, line 3: Substitutes "the radiation receiver" with -- a radiation receiver --.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka et al (US 5,059,791) in view of Cai et al (US 5,825,023 - cited by the Applicant).

Re claims 1-3 and 6-8: Ishizuka et al discloses an encoder arrangement, comprising a motor with a motor shaft 50 on which a timing disk 6 is secured, a signal source 1 for generating an optical signal, as well as a beam mask 23 for shaping the optical signal wherein a mask support is integrated in the beam mask (fig. 11), a prismatic body 16 is introduced into the beam path for beam deflection and beam shaping (figs. 2, 10 & 11; col. 3, line 40 through col. 4, line 34).

Ishizuka et al is silent with respect to the beam mask is provided with code bars having pit and land structures having a diffraction and interference structure.

Cai et al teaches a scaling grating 1 mask is provided with code bars having pit and land structures having a diffraction and interference structure (figs. 3-5; col. 4, lines 1-49).

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teachings of Cai et al into the system as taught by Ishizuka et al in order to provide Ishizuka et al with a more accurate system in which a high resolution can be achieved due to the height difference between the pit and land of the grating (i.e., when the spot is exactly located on the edge of the pit and land, the phase difference causes the two parts of the beam to interfere destructively with and cancel each other, and there is no evident difference between the reflection from the pure pit and land).

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6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka et al as modified by Cai et al as applied to claim 1 above, and further in view of Durham, III (US 5665965 A).

Re claim 4: Ishizuka et al/Cai et al has been discussed above but is silent with respect to the mask support comprises an opening for the motor shaft.

Durham, III teaches a mask support 830 comprises an opening for the motor shaft (fig. 18; col. 20, lines 27+).

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teachings of Durham III into the system as taught by Ishizuka et al/Cai et al in order to provide Ishizuka et al/Cai et al with a better secure means for securing the mask support, preventing the mask from moving from a predetermined position during encoding process and therefore an obvious expedient.

Allowable Subject Matter

7. Claims 5 and 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of records to Ishizuka et al, Cai et al, Durham III and all other cited references, taken alone or in combination, fails to teach or fairly suggest the specific structure or the method of an encoder arrangement, among other things, comprising a beam mask that is made of a polycarbonate, wherein regions between the code bars are

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made transparent and the pit and land structures include a thickness difference D , which satisfies the following function: $D = L / 2 (n-1)$ with $n = 1.5$ and L = wavelength of the optical signal, wherein the mask support and signal source are integrated in the prismatic body, and wherein a connecting plane is formed in the region of the beam entrance with a form-fit between a printed circuit board and the prism as set forth in the claims combination.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patents to Inoue (US 5477526 A); Inoue (US 5594716 A); Bartelt et al (US 4728193 A); Koch et al (US 5413884 A); Braun et al (US 6437324 B1); Braun (US 6384501 B2); Ishizuka et al (US 5036192 A); Ishizuka et al (US 5532819 A) are cited as of interest and illustrate a similar structure to an encoder arrangement.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uyen-Chau N. Le whose telephone number is 571-272-2397. The examiner can normally be reached on Mon-Fri. 5:30AM-2:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL G. LEE can be reached on 571-272-2398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Uyen-Chau N. Le
April 17, 2005